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STUDIES IN CRATÆGUS. I.

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FEW genera so widely distributed in the United States have been so poorly interpreted by American botanists as the genus *Cratægus*. In Europe there exists a better understanding of a number of American forms, a knowledge gained almost wholly from cultivated specimens, but it must be evident to any student of these interesting plants that all of the descriptions published up to the present time fall short of embracing the forms growing in almost any section of the country. My attention was first drawn to the thorns about ten years ago, when I attempted to raise many thousands of young plants from seeds gathered in the southern Alleghany region. Making no attempt to propagate other than thrifty plants of the well-known and widely recognized species, I was perplexed to find a nursery of the most diverse forms under almost every label. Low and bushy plants with dark foliage stood in bold contrast with tall and fastigate individuals with leaves of different tint and outline. No explanation seemed more reasonable than that some careless gardener had mixed the seeds so painstakingly collected from fine, healthy individuals, and with a determination that more care should be exercised in succeeding attempts, the matter was dropped. The next autumn the sowing was most carefully done, and while the fruits and seeds did not all look quite alike, it was easily demonstrated that the species recognized in our botanical field-books were not confounded. The results of this seeding were even more confusing than the first, as the seeds were gathered from wider fields. And thus the evidence accumulated each year, until, almost unconsciously, I commenced to separate the forms as they grew and the seeds as they were gathered. This solution was complete, and as the oldest seedlings are now bearing the kinds of fruits earlier recognized as strange, the publication of

new species is fully justified. In this, and other papers which will appear as suitable material accumulates, I propose to deal with new forms coming to my attention, and to characterize the published species, with which are now confounded others with constant and widely different features.

Cratægus Biltmoreana, n. sp.—A branching shrub, 1–5^m tall, growing in dry or rocky woodlands: flowers, which appear when the leaves are almost fully grown, white, 2–2.5^{cm} in diameter when expanded, produced in simple, pubescent, 3–7-flowered corymbs with lanceolate, pectinately-glandular, caducous bracts; they are borne on strict, pubescent pedicels which vary from 7^{mm}–2.5^{cm} in length and open in the vicinity of Biltmore, N. C. (type locality), about the twentieth of May: calyx obconic, pubescent or tomentose on the outside, with lanceolate, dentate or pectinate, glandular lobes about 5^{mm} long which are reflexed after anthesis: petals broadly-obovate or nearly orbicular in outline, 8–12^{mm}, contracted near the base into short claws: stamens 10, shorter than the petals; the anthers pale yellow: styles 3–5, shorter than the stamens, surrounded at the base with pale hairs: fruit, which ripens and falls at the end of September or early in October, yellow, greenish-yellow or sometimes orange, the parts exposed to the sun being rosy-cheeked or diffused with red, containing from 3–5 nutlets; they are depressed-globose, bluntly angled, 10–15^{mm} broad, 10–12^{mm} high, the cavity broad, 3–5^{mm}, and deep, 2–3^{mm}, surrounded by the calyx lobes and portions of the filaments: nutlets thick walled, 5–7^{mm} in greatest diameter, 3–5^{mm} measured dorso-ventrally, a volume of 125^{cc} containing about 1858 thoroughly cleaned, dry seeds; they are deeply grooved on the back and display a prominent ridge near the middle, the inner faces being nearly plane: leaves 2–6^{cm} wide, 3–10^{cm} long including the petiole, or occasionally larger, ovate, or round-ovate, acute at the apex; rounded, truncate or on vigorous shoots subcordate, but usually wedge-shaped at the base and prolonged into a slightly winged or margined petiole 1–3^{cm} long and bearing, as does the extreme base of the leaf, a few dark-colored stalked

glands; borders acutely incised, or slightly 5-9-lobed and sharply and irregularly serrate to near the base; they are thin and membranaceous at flowering time, becoming firmer and thicker with age, harshly, though rather inconspicuously pubescent on both surfaces throughout the vegetating season, bright green on the upper surface, pale beneath, the prominent veins being disposed in 4-6 pairs: spines stout, 2-5^{cm} long on the branches, slightly curved, dark chestnut-brown on the new and gray on the old wood: bark of the main stem reddish-brown, slightly fissured and broken into many small, persistent, ashy-gray scales; that of the branchlets chestnut- or reddish-brown, or gray, sprinkled with small, pale lenticels: buds almost globular, bright reddish-brown.

Cratægus Biltmoreana is distributed from North Carolina, northern Alabama, and eastern Tennessee to Virginia and Pennsylvania. It has been usually confounded with and preserved in herbaria under the name *C. mollis* (T. & G.) Scheele,¹ from which, or any form now resting under this name, the Biltmore thorn may be known by its smaller size, simple corymbs, later time of blossoming, and by the color and texture of the fruit. The type material is preserved in the Biltmore Herbarium.

Cratægus Sargenti, n. sp.—An intricately branched tree, seldom more than 6^m tall, or more frequently a large shrub 2-5^m in height, with one or several stems: the bark of the trunk ashy-gray or light brown, slightly fissured and broken into many thin plate-like scales, or nearly smooth with scattered patches of appressed, small scales: branches spreading or ascending, armed with straight or curved, simple or branched, dark chestnut-brown or gray spines 2.5-7^{cm} long; they are intricately divided into numerous, short branchlets which are clothed with dark reddish-brown bark and marked by small round or elongated pale lenticels, forming a narrow, or occasionally round or flat-topped head: buds globular, bright reddish-brown: flowers, which appear about the first of May in the vicinity of Valley Head, Alabama, and when the leaves are almost fully grown, disposed

¹ Linnæa 21: 569. 1848.

in a few- (mostly 3-) flowered, more or less pubescent, simple corymbs: lateral pedicels longer than the intermediate ones, 1.5–3.5^{cm} long, more or less pubescent or pilose: calyx obconic, pubescent, the segments glandular-serrate, 6–9^{mm} long, persistent or nearly so: corolla white, the divisions nearly round or a little broader than long: stamens normally 20, 5–7^{mm} long: pistils 3–5, surrounded at the base with pale hairs: fruit, which ripens and falls after the middle of September, globose or depressed-globose, 10–13^{mm} broad, 10–12^{mm} high, yellow, orange-yellow or flushed with red, the flesh thin and firm; cavity 3–5^{mm} broad and nearly as deep, surrounded by the remnants of the stamens: nutlets 3–5, but usually 4, hard and bony, the walls thick, 7–9^{mm} long, 4–6^{mm} measured dorso-ventrally, with the back ridged and grooved and the lateral faces nearly plane: leaves thin to subcoriaceous, sparsely pubescent when young, soon glabrous, yellowish-green on the upper surface, paler below and displaying 5–7 pairs of prominent veins; they are ovate, ovate-lanceolate or round-ovate, 2.5–12^{cm} long, 1–6^{cm} wide, or occasionally larger on vigorous shoots, acute at the apex, rounded or abruptly contracted at the base into a margined or winged, slightly glandular petiole, 5^{mm}–3.5^{cm} long, the borders irregularly and doubly serrate and incisely lobed and the serratures minutely glandular-tipped: stipules linear to linear-lanceolate, glandular, or on strong shoots foliaceous, lunate, glandular-serrate, caducous.

Cratægus Sargentii is a remarkably distinct and showy species, especially in the autumn when the foliage assumes many lively tints of red and yellow. It inhabits the rocky woods and bluffs, or occasionally the rich, deep soil of the mountainous regions of northwestern Georgia, northern Alabama (extending as far south as Birmingham), and southeastern Tennessee. The species belongs to an interesting and very natural group of several distinct species of which no type has, so far as I have observed, been published. Many specimens of the related forms are preserved in herbaria under the names *C. rotundifolia*, *C. glandulosa*, *C. coccinea*, etc., titles which are, when correctly applied, associated with widely different plants.

I take pleasure in naming the species in honor of Professor C. S. Sargent, Director of the Arnold Arboretum of Harvard University, who first called my attention to specimens collected by him near Rome, Georgia, in April 1899. The type material, which I had the opportunity of selecting from thousands of examples near Valley Head, Alabama (type locality), is preserved in the Biltmore Herbarium.

Cratægus Boyntoni, n. sp.—A tree seldom more than 6^m in height, or more frequently a large branching shrub, 2–4^m tall, frequenting the banks of streams and even the shallow, dry soil of old fields and upland woods: flowers, which expand about the tenth of May in the vicinity of Biltmore, N. C. (type locality), and when the leaves are almost fully grown, 1.75–2.25^{cm} in diameter, produced in short, glandular-bracteate, 4–10-flowered corymbs: pedicels 7^{mm}–1.5^{cm} long, glabrous, bearing one or two glandular or pectinately-glandular bractlets: calyx obconic, smooth, the divisions acute, glandular serrate, 4–6^{mm} long: petals white, nearly orbicular, or a little broader than long, with a short and broad claw at the base, 9–12^{mm} in diameter: stamens 10, 6–9^{mm} long, the anthers light yellow: pistils 3–5, surrounded at the base with pale hairs: fruit dull, yellowish-green, flushed with russet-red, depressed-globose, angled, 10–14^{mm} high, 12–16^{mm} broad, ripening and falling early in October: nutlets 3–5, hard and bony, 6–8^{mm} long, 4–5^{mm} measured dorso-ventrally, the back ridged and grooved and the lateral faces nearly plane, a volume of 125^{cc} containing about 1293 thoroughly clean and dry seeds: leaves at first membranaceous, becoming subcoriaceous with age, yellowish-green on the upper, paler on the lower surface, glabrous, or with a few scattered hairs along the midrib and larger veins, which are disposed in 4–7 pairs; they are broadly ovate or oval in outline, acute at the apex, rounded or narrowed at the base and prolonged into a margined, glandular petiole 1–2.5^{cm} long, or on vigorous shoots deltoid-ovate and truncate or subcordate at the base; the borders are sharply and irregularly serrate, doubly serrate or incisely 5–7-lobed, the serratures minutely gland-tipped: stipules linear, glandular, caducous, or on strong

shoots foliaceous, lunate, glandular-serrate : trunk, which is 2-3^m long and 1-2^{dm} in diameter, and occasionally armed with gray, branched spines, covered with ashy-gray bark, not infrequently tinged with brown, or in the shade of the forest dark-gray, slightly fissured and broken into many small, plate-like scales : branches stout, ascending, armed with dark, chestnut-brown or gray, straight or slightly curved spines, 3-7^{cm} long, or larger, the bark close and smooth, dark-gray or brown : branchlets smooth, the bark dark reddish-brown, sprinkled with small, round or elongated, pale lenticels, the whole forming a narrow or occasionally round or flat-topped tree, or a much-branched oval or pyramidal shrub.

Cratægus Boyntoni is distributed from Georgia, Alabama, and Tennessee to Virginia, Pennsylvania, and Delaware, and will doubtless be found to extend over a broader area when better known. It is closely related to *C. Sargenti*, above proposed, but may be separated by the numerous-flowered, glabrous corymbs, shorter pedicels, and fewer stamens, and by the different habit of growth. Many specimens are preserved in herbaria, the greater part of which are also labeled *C. coccinea*, *C. glandulosa*, or *C. rotundifolia*. My attention was first directed to this form by Mr. F. E. Boynton, of the Biltmore Herbarium, for whom the species is named, by the exhibition of plants loaded with the characteristic and distinct fruit, and of branches displaying the glandular and brightly colored characters of the unfolding leaves and shoots. To this species I refer, in part, the material representing the southern distribution of *C. rotundifolia* of the Illustrated Flora², and the note under this name published by me in the BOTANICAL GAZETTE³. The type material is preserved in the Biltmore Herbarium.

CRATÆGUS TRIFLORA Chapm. Flora Southern United States, Suppl. II. 684. 1892 [Ed. 2].—A large shrub or small tree, 2-7^m tall, growing on limestone bluffs near Rome, Ga. (type locality), and in similar situations near Birmingham, Ala. Main

² Ill. Flora Northern U. S., etc., 2 : 243. 1897.

³ BOT. GAZ. 25 : 446. 1898.

stem single, or branching near the base into several spreading shoots, armed with numerous branched spines: bark light gray, or with a decided tinge of brown, either close or slightly furrowed and broken into many small, plate-like scales: branches ascending, clothed with light gray, smooth bark and bearing a few simple or branched, straight or slightly curved, chestnut-brown to gray spines, 2.5–6^{cm} long; they are intricately divided near the summit into many short, pilose or pubescent, brown or dark reddish-brown branchlets, forming an oblong or occasionally round or flat-topped head: buds globular, bright reddish-brown, the terminal one on strong shoots displaying several spreading scales: leaves, which are full grown at flowering time, thin at first, becoming subcoriaceous, dark green above, paler below, ovate, elliptical, or slightly obovate, acute at the apex, rounded or abruptly contracted at the base into a winged or margined petiole, 8^{mm}–3.5^{cm} long: they vary in size from those on the fertile branches, which are 2–10^{cm} long including the petiole, 1–5^{cm} wide, to large, broad leaves on vigorous shoots, 13^{cm} long, 8^{cm} wide, the borders being sharply and irregularly serrate, or doubly serrate and incisely lobed and bearing, as does the petiole, a number of stalked, black-tipped glands near the base; the upper surface harshly and rather inconspicuously pubescent throughout the vegetating season, below more densely and permanently pubescent, especially along the 5–7 prominent veins: stipules lanceolate or oblong or on the stronger shoots foliaceous and lunate, densely glandular or glandular-serrate, caducous: flowers, which open about the first of May, disposed in few-, mostly 3-flowered, pilose corymbs: pedicels 1–3.5^{cm} long, the lateral much longer than the intermediate one, bearing a densely or pectinately glandular, deciduous bractlet: calyx obconic, densely pilose, the segments persistent, pubescent, glandular-serrate, 7–9^{mm} long, 2–4^{mm} wide, acute: corolla 2–3^{cm} wide, the divisions orbicular, 10–13^{mm} in diameter: stamens normally 20, 5–7^{mm} long: styles 3–5, surrounded at the base with pale hairs: fruit, which ripens about the middle of September, globose, 12–15^{mm} in diameter, bright

or deep red, pubescent, the cavity 5–6^{mm} broad, 3–5^{mm} deep: nutlets 3–5, hard and bony, 7–9^{mm} long, about 5^{mm} measured dorso-ventrally, a volume of 125^{cc} containing about 1633 clean and dry seeds.

The type material is preserved in the Chapman Herbarium at Biltmore.

Cratægus austromontana, n. sp.—A straggling shrub, 1–4^m in height, frequenting rocky woods and banks: main stems 1–3, arising from large coarse roots or horizontal rootstocks, or frequently a group or clump more or less united, occupying a surface of 5–10 square meters: bark close, or slightly broken into numerous small plates, gray, or with a decided tinge of brown: branches unarmed, or an occasional spine on a young plant or vigorous shoot, the bark smooth, gray or nearly brown: branchlets pilose-pubescent or tomentose, covered with dark chestnut or reddish-brown bark which is marked by round or elongated, pale lenticels, buds globular, bright reddish-brown: flowers large, borne in simple 2–5- (usually 3-) flowered cymes, opening in the vicinity of Valley Head, Ala. (type locality), the first part of May: pedicels stout, pilose or tomentose, 1–2.5^{cm} long, bearing a linear, glandular, deciduous bract near the summit: calyx broad, obconic, pubescent, the divisions lanceolate, 6–10^{mm} long, 1–3^{mm} wide, pectinately-glandular or glandular-serrate, pubescent: stamens 10, 4–7^{mm} long: pistils 3–5, surrounded at the base with pale hairs: fruit, which ripens and falls during the latter part of September, large, globose, 12–15^{mm} in diameter, bright red, pubescent, and frequently punctate, containing 3–5 hard, bony nutlets which are 8–10^{mm} long, 4–5^{mm} wide, measured from the back to the inner edge, bluntly angled on the back and with lateral faces narrow and nearly plane: cavity broad, 4–6^{mm} wide, surrounded by the persistent calyx lobes and remnants of the filaments: leaves orbicular, broadly oval or round-ovate, 3.5–12^{cm} long, including the pubescent or tomentose petiole, which, like the extreme base of the leaf, bears a number of stalked, black-tipped glands, 2.5–7.5^{cm} wide, or sometimes larger on strong shoots; they are harshly, though

rather inconspicuously, pubescent on both surfaces, the pubescence being more pronounced on the lower side and along the principal veins, which are disposed in about 5-7 pairs; acute at the apex, contracted at the rounded, truncate or sometimes subcordate base into a margined or winged petiole 1-4^{cm} long, the borders very sharply and irregularly serrate, or frequently doubly serrate or incisely lobed, the serratures tipped with minute dark colored glands.

Cratægus austromontana is distributed throughout the Sand mountain region of Alabama, and has also been collected at several stations in the Cumberland mountains and hill country of eastern and middle Tennessee. The new species is closely associated with *C. triflora* Chapm., but may be recognized by its smaller size, broader leaves, fewer stamens, and by the larger and coarser seeds. The type material is preserved in the Biltmore Herbarium.

Cratægus Harbisoni, n. sp.—A tree 5-8 meters in height, frequenting rocky slopes and ridges: leaves obovate, oval, or broadly ovate, 3-12^{cm} long including the petiole, 2-9^{cm} wide, acute at the apex, narrowed at the rounded or tapering base into margined or winged petioles; they are harshly and rather inconspicuously pubescent on the upper and more densely coated on the lower surface and along the 5-7 principal veins, subcoriaceous, dark green and lustrous above, pale below, the borders doubly and irregularly serrate to near the base, or frequently incisely lobed: petioles 6^{mm}-2^{cm} long, bearing, as does the extreme base of the blade, a number of stalked, black-tipped glands: stipules glandular-serrate or pectinately-glandular, deciduous, foliaceous on the stronger shoots, acute or lunate: flowers, which appear in early May in the vicinity of Nashville, Tennessee (type locality), produced in broad, pubescent, or pilose, divergently-branched corymbs, the lower branches from the axils of leaves: bracts subtending the branches of the corymbs large, 7-18^{mm} long, 2-4^{mm} broad, pectinately or glandular-serrate, caducous: pedicels pubescent or pilose, stout, 5^{mm}-3.5^{cm} long, bearing a pectinately-glandular, elongated,

deciduous bractlet: calyx obconic, pubescent, the lobes lanceolate, glandular-serrate, persistent: stamens normally 20, 4–6^{mm} long: pistils 3–5, surrounded at the base with pale hairs: fruit large, red, or orange-red, globose, 10–13^{mm} in diameter, pubescent or smooth, punctate, ripening in October: nutlets 3–5, 6–9^{mm} long, 4–5^{mm} from back to inner angle, either furrowed on the dorsal side or with a blunt ridge and two grooves, the lateral surfaces nearly plane, a volume of 125^{cc} containing about 1490 clean and dry seeds; cavity 4–6^{mm} wide: bark of the trunk, which is from 1–2^{dm} in diameter and 1–2 meters long, close or slightly fissured and scaly, ashy-gray or darker in color and frequently armed with simple or branched spines: branches clothed with smooth, gray or light brown bark, and bearing straight or curved chestnut-brown or gray spines 3–6^{cm} long, the growth of the season reddish-brown in color and marked by small, pale lenticels: buds nearly round, bright reddish-brown, the terminal one displaying several large, spreading, acute scales.

Cratægus Harbisoni was discovered by Mr. T. G. Harbison of the Biltmore Herbarium, for whom the species is named, on the limestone hills and ridges near Nashville, Tennessee, where numerous examples were observed at intervals during the past summer.

The new species probably belongs to a group of which *C. triflora* Chapm. and the *C. austromontana* previously proposed are types. From the former it may be separated by the compound, many-flowered corymbs, and from the latter by its greater size, numerous stamens, spiny branches, large flower-clusters, and the different habit of growth. The type material is preserved in the Biltmore Herbarium.

Cratægus silvicola, n. sp.—A tree, attaining in low moist woodlands a height of 6–10^m, or in upland forests a shrub with one or more stems, 1–5^m tall: trunk, which is sometimes 2^{dm} in diameter, covered with a close or slightly fissured and scaly, gray or reddish-brown bark, and armed with stout, branched spines: branches, which are spreading or ascending and form a

round or flat-topped head, armed with straight or curved, chestnut-brown or gray spines 2–6^{cm} long, and clothed with gray or light brown bark: branchlets chestnut- or reddish-brown, sprinkled with small pale lenticels: buds globular, bright reddish-brown: leaves ovate, round ovate or on vigorous shoots deltoid, acute at the apex, rounded and narrowed at the base, or occasionally truncate or subcordate, 3–10^{cm} long, including the petiole, 2–6^{cm} wide, the borders sharply and irregularly serrate, or doubly serrate and incisely 5–7-lobed, the serratures minutely glandular-apiculate; they are bright or yellowish-green and minutely roughened, or occasionally scabrous-pubescent on the upper surface, paler below and generally smooth, or with a few hairs along the larger veins, which are disposed in 3–5 pairs: petioles slender, 5^{mm}–3^{cm} long, glandular: pedicels strict, 7^{mm}–1.5^{cm} long: calyx obconic, the divisions short, entire or glandular-serrate, 3–4^{mm} long, acute: stamens 10: styles 3–5, surrounded at the base with pale hairs: fruit globose, 10–11^{mm} in diameter, red or greenish-yellow with ruddy cheek, ripening and falling the last of September in the vicinity of Gadsden, Alabama (type locality): nutlets 3–5, hard and bony, 5–6^{mm} long, 3–4^{mm} measured dorso-ventrally, the back ridged and grooved and the lateral faces nearly plane: flesh thin and firm.

Cratægus silvicola is abundantly represented in the “flat-woods” of northern Alabama and northwestern Georgia, and occasionally ascends into the poorer and drier woodlands of the surrounding country. The lower leaves and those from young plants are much rougher to the touch than foliage from the upper branches of the larger and older trees, but the fruit, which when ripe falls from the trees at the slightest interference, is constant in form and color. I presume the proposed species represents one of the several forms of the South Atlantic region heretofore referred to *C. coccinea*. L.⁴ Taking the original description and a copy of a tracing of the type specimen of the scarlet thorn, *C. silvicola* may be distinguished by the rough leaves, which are less incised and broader and longer in outline,

⁴Sp. Pl. 476. 1753.

and by the short, strict, and stout pedicels. The type material is preserved in the Biltmore Herbarium.

Cratægus Mohri, n. sp.—A tree 6–10^m tall with a slender trunk 1–2^{dm} in diameter, unarmed, or sparsely furnished with long, simple or branched spines, and covered with thin, scaly, ashy-gray or reddish-brown bark; or in unfavorable situations a large, erect and branching shrub: branches ascending or nearly horizontal, spiny, forming an oblong or occasionally round compact head; the bark close and usually gray: branchlets and smaller branches zig-zag, armed with slightly curved or straight, chestnut-brown or gray spines 2–5^{cm} long; the growth of the season at first pubescent, clothed with light brown or gray, lustrous bark which is marked by small, pale lenticels: buds nearly round, or the lateral occasionally compressed, bright reddish-brown: leaves cuneate-obovate, or on vigorous shoots varying from oval to orbicular, 2–7^{cm} long including the petiole, 1.5–3^{cm} wide, or larger on the shoots, acute or rounded at the apex and contracted below into winged or margined petioles 7^{mm}–2^{cm} long, sharply and irregularly serrate to or below the middle, entire or nearly so at the base, and sometimes, especially on vigorous shoots, doubly serrate or incisely lobed; they are more or less pubescent along the veins when young, dark green and lustrous above, pale below, becoming thick and coriaceous with age: stipules linear, glandular, 5–10^{mm} long, caducous: flowers, which appear when the leaves are of full size, disposed in slender, elongated and often flexuous, many-flowered, bracteate corymbs, which are more or less pubescent or pilose at flowering time, and open in the vicinity of Rome, Georgia (type locality) about the first of May; they are 1.5–1.75^{cm} in diameter and borne on more or less pilose, slender, often flexuous pedicels 8^{mm}–2.5^{cm} long, which bear one or two minute, subulate, caducous bractlets: calyx narrow, obconic, glabrous or occasionally a little pilose; the segments linear-lanceolate, 2–5^{mm} long, entire or slightly glandular serrate, reflexed after anthesis; corolla white, the divisions round-ovate or nearly orbicular, 6–8^{mm} long, 5–7^{mm} wide with undulate or erose borders: stamens normally

20, 3-5^{mm} long: styles 3-5, surrounded at the base with pale hairs: fruit globose, 8-9^{mm} in diameter, dull, dark-red or greenish-red, or frequently covered with black spots and blotches, ripe about the first of October and hanging until early winter, the cavity 2-3^{mm} wide and deep, bordered by the remnants of the calyx lobes and stamens: nutlets 3-5, thick-walled, 5-7^{mm} long, about 3^{mm} wide measured dorso-ventrally, with a prominent ridge and two deep grooves on the back, the inner faces nearly plane.

Cratægus Mohri is distributed from Georgia westward through upper and central Alabama and Mississippi, and northward to middle Tennessee. It reaches its best development in the rich and moist soil of the "flat-woods" of central Alabama, though not infrequently it ascends into the poorer and drier soil of the hills and mountains. The species has been usually confounded with *Cratægus crus-galli* L.,⁵ or more recently with *C. collina* Chapm.⁶ From the former it may be recognized by the pilose corymbs, smaller and globular fruit, more numerous and smaller nutlets, habit of growth, and by the outline of the leaves; while from *C. collina* it may be separated by the later time of flowering, smaller fruit and nutlets, and by the luster of the leaves.

I take pleasure in associating with this beautiful and most distinct hawthorn, the name of Dr. Charles Mohr, of Mobile, Alabama.

The type material is preserved in the Biltmore Herbarium.

BILTMORE HERBARIUM.

⁵ Sp. Pl. 476. 1753.

⁶ Flora S. U. S., suppl. II. 684. 1892. [Ed. 2.]